AF/3721
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

Ken Yonekawa et al

Serial No. 10/058,054

Filed: January 29, 2002

: Confirmation No. 3667

: Group Art Unit: 3721

: Examiner: Harmon, Christopher R

For: SHEET PROCESSING APPARATUS AND IMAGE FORMING APPARATUS EQUIPPED WITH THE SAME

Box Patent Appeal Brief
Commissioner for Patents
U.S. Patent and Trademarks Office
P.O. Box 1450
Alexandria, VA 22313-1450

Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

APPELLANT'S BRIEF (37 C.F.R. § 1.192)

This brief is in furtherance of the Notice of Appeal, filed in this case on April 8, 2004.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate.

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I. REAL PARTY IN INTEREST

The real party in interest in this appeal is NISCA CORPORATION.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There is a total of 5 claims in the application, which are identified as claims 1, 4-6, and 9.

B. Status of all the claims

1. Claims cancelled:
2. Claims withdrawn from consideration but not cancelled:
3. Claims pending: claims 1, 4-6, and 9
4. Claims allowed:
5. Claims rejected: claims 1, 4-6, and 9

C. Claims on Appeal

Claims on appeal are claims 1, 4-6, and 9.

IV. STATUS OF AMENDMENTS

Appellant submitted an Amendment After Final on March 4, 2004 amending claims 1 and 9, and canceling claims 2, 3, 7, and 8. In the Examiner's Advisory Action mailed March

19, 2004, the Examiner stated that the submitted amendments would be entered; however, the Examiner failed to explain how the amended claims would be rejected.

Previously, claims 1-3 and 6 were rejected under 35 U.S.C. 102(b) and claims 4-5 and 7-9 were rejected under 35 U.S.C. 103(a). Claim 1 was amended to incorporate subject matter from claims 7 and 8, and claim 9 was amended to be in independent form.

For purposes of this Appeal Brief, Appellant will assume that the amendments to claims 1 and 9 overcome the previous 35 U.S.C. 102-based rejection because the subject matter incorporated was the subject of only a 35 U.S.C. 103-based rejection.

V. SUMMARY OF INVENTION

A folding type sheet processing apparatus employs a folding blade to press a sheet bundle between opposing and paired folding rollers, and then draws the sheet bundle inward by rotating the folding rollers thereby folding the sheet bundle. In the conventional sheet processing apparatus folding sheets in this manner, pass-through rollers covering the entire width direction of the sheets are used, and the folding rollers are made of rubber or a material having a comparatively high coefficient of friction.

However, when folding rollers having this kind of structure are used, in the sheets comprising the sheet bundle, only a sheet directly contacting the folding rollers is pulled between the folding rollers forcefully and suddenly by the folding rollers having a high friction coefficient, thereby causing a gap to be formed between adjacent sheets.

An embodiment of the present invention relates to a sheet processing apparatus for folding a sheet bundle at a predetermined position comprising pressing means for pressing a predetermined position of the sheet bundle to fold the sheet bundle, and paired rotating bodies for folding the sheet bundle supplied by the pressing means. (Specification at page 18, paragraph 68 - page 20, paragraph 75 and page 26, paragraph 102 - page 35, paragraph 137) The paired rotating bodies have nip portions contacting the sheet bundle. (Specification at page 19, paragraph 72) At least one nip portion has a high friction coefficient region and a low friction coefficient region less than the

high friction coefficient region in friction coefficient, which are made of different materials. (Specification at page 32, paragraph 129 - page 33, paragraph 130) Thus, a pulling force of the rotating bodies to pull the sheet bundle pressed into the nip portions of the rotating bodies by the pressing means has an amount which does not separate a sheet of the sheet bundle contacting the rotating bodies from subsequent sheets in the sheet bundle when pulling the sheet bundle. (Specification at page 33, paragraph 132 - page 34, paragraph 134)

In a first embodiment, each of the paired rotating bodies is formed of one roller having a circular portion forming the nip portion and two non-circular portions. (Figures 23(a)-23(c) and 24) The circular portion has high and low friction coefficient portions and is located between two non-circular portions in one roller. The high friction coefficient portion is sandwiched between two low friction coefficient portions in one circular portion.

In another embodiment, each of the paired rotating bodies is formed of one roller having a circular portion and non-circular portions. The circular portion in one of the paired rotating bodies has both high and low friction coefficient portions, and the circular portion in the other of the paired rotating bodies has only the low friction coefficient portion. (Figures 26(a)-26(c))

Advantageously, the sheet is not suddenly pulled inwardly between the paired rollers, effectuating the further result that the adjacent sheets are folded without forming a gap therebetween. (Specification Figure 25) Further advantageously, the paired roller pulling force does not separate the sheet directly contacting the paired rollers from the other sheets in the sheet bundle when pulling the sheet bundle. In this manner, a powerful and sudden pulling force only on the sheet directly contacting the paired rollers is prevented. (Specification at page 34, paragraph 133) In turn, no slowdown of the folding speed results and alleviates the problems of 1) transporting only the sheet contacting the paired rollers based on a sudden force; 2) forming a gap between the direct contact sheet and subsequent sheets; and 3) causing mis-folds and loosening sheets from the sheet bundle when stapled in advance. (Specification at page 34, paragraph 134)

These advantages are achieved by the present invention as recited in the apparatus of independent claim 1 which provides: "A sheet processing apparatus for folding a sheet bundle at a predetermined position, comprising: pressing means for pressing a predetermined position of said

sheet bundle to fold the sheet bundle; and paired rotating bodies for folding the sheet bundle supplied by the pressing means, said paired rotating bodies having nip portions contacting the sheet bundle, said nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region in friction coefficient, which are made of different materials, each of said paired rotating bodies being formed of one roller having a circular portion forming the nip portion and two non-circular portions, said circular portion having said high and low friction coefficient portions and being located between the two non-circular portions in one roller, said high friction coefficient portion being sandwiched between two low friction coefficient portions in one circular portion so that a pulling force of the rotating bodies to pull the sheet bundle pressed into the nip portions of the rotating bodies by the pressing means has an amount which does not separate a sheet of said sheet bundle contacting the rotating bodies from subsequent sheets in the sheet bundle when pulling the sheet bundle."

Further, these advantages are achieved by the present invention as recited in the apparatus of independent claim 9 which provides: "A sheet processing apparatus for folding a sheet bundle at a predetermined position, comprising: pressing means for pressing a predetermined position of said sheet bundle to fold the sheet bundle; and paired rotating bodies for folding the sheet bundle supplied by the pressing means, said paired rotating bodies having nip portions contacting the sheet bundle, one of said nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region in friction coefficient, which are made of different materials, each of said paired rotating bodies being formed of one roller having a circular portion and non-circular portions, said circular portion in one of said paired rotating bodies having said high and low friction coefficient portions and said circular portion in the other of said paired rotating bodies having only said low friction coefficient portion so that a pulling force of the rotating bodies to pull the sheet bundle pressed into the nip portions of the rotating bodies by the pressing means has an amount which does not separate a sheet of said sheet bundle contacting the rotating bodies from subsequent sheets in the sheet bundle when pulling the sheet bundle."

VI. ISSUES

A. First Issue

The first issue is whether the Examiner was correct in rejecting claims 1 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Wakabayashi et al. (U.S. Patent 6,568,668, hereinafter Wakabayashi) in view of von Hein (U.S. Patent 5,007,891, hereinafter von Hein).

B. Second Issue

The second issue is whether the Examiner was correct in rejecting claim 9 under 35 U.S.C. 103(a) as being unpatentable over Wakabayashi et al. (U.S. Patent 6,568,668, hereinafter Wakabayashi) in view of von Hein (U.S. Patent 5,007,891, hereinafter von Hein).

VII. GROUPING OF CLAIMS

For purposes of this Appeal Brief only, the claims have been grouped as follows:

Group I. 1 and 4-6; and

Group II. 9.

Claims 1 and 4-6, and claim 9 should be separately examined. Claims 1 and 4-6 may stand or fall together, but the rejected claims otherwise should not stand or fall together. The reasons why the claims are separately patentable are set forth in the Argument section of this Brief.

VIII. ARGUMENTS

A. First Issue

Was the Examiner correct in rejecting claims 1 and 4-6 under 35 U.S.C. 103(a) as being unpatentable over Wakabayashi et al. (U.S. Patent 6,568,668, hereinafter Wakabayashi) in view of von Hein (U.S. Patent 5,007,891, hereinafter von Hein)?

In the Final Official Action mailed December 10, 2003, the Examiner asserts that Wakabayashi discloses all the claim 1 limitations except non-circular sections or having one section narrower than the other. The Examiner attempts to combine Wakabayashi with von Hein to overcome the admitted deficiency and asserts that one of ordinary skill in the art at the time of the present invention would be motivated to substitute the von Hein roller in the Wakabayashi device in order to prevent slippage and provide relief. The Examiner is incorrect for at least six reasons.

In Wakabayashi et al., specifically rollers 676A, 676B, 671A, 671B depicted in Figs. 8 and 14 referred to in the Final Official Action, it is stated that at least one roller among paired rollers 676A and 676B has a surface layer of elastic material, e.g. rubber-coated layer, while roller 676B is a hard roller, i.e. metallic roller. (Wakabayashi at column 14, lines 22-27)

First, contrasted with the rollers of Wakabayashi, each of the paired rotating bodies as claimed in claim 1 is formed of one roller having a circular portion forming a nip portion and two non-circular portions. In Wakabayashi, all of the rollers 676A, 676B, 671A, 671B are formed of the same type roller even though the belts 677A, 677B are attached. Wakabayashi fails to describe or suggest rollers having non-circular portions. Wakabayashi describes rollers having only a circular portion and fails to describe non-circular portions formed in the roller having a circular portion.

Second, in claim 1, the circular portion of one roller has high and low friction coefficient portions and is located between two non-circular portions. In Wakabayashi, roller 676A has the high friction coefficient portion and roller 676B has the low friction coefficient portion. However, Wakabayashi fails to disclose one roller having both high and low friction coefficient portions. Further, Wakabayashi fails to describe such a roller having both high and low friction coefficient portions and located between two non-circular portions as claimed in claim 1.

Third, Wakabayashi fails to describe or suggest the claim 1 nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region. As described above with respect to the second reason, Wakabayashi rollers separately have a high friction coefficient and a low friction coefficient, but Wakabayashi fails to disclose one roller having a nip portion having both high and low coefficient portions.

In von Hein, folding rollers 4, 5 with recesses 14, 15 are used for folding sheets. The folding roller is depicted in Fig. 3 and includes a part 21 for folding the sheets having cut recesses

22, 23 for guiding belts 17, 18, and an area 24 with a recess 25. Namely, the part 21 contacting the sheets in one roller extends substantially entirely throughout the entire length thereof except for the cut recesses 22, 23 for the guiding belts, and the recess 25 also extends in one roller substantially entirely throughout the entire length thereof except for the portions for the guiding belts.

Fourth and in contrast to von Hein, each of the paired rotating bodies of claim 1 is formed of one roller having a circular portion forming the nip portion and two non-circular portions. In von Hein, one roller has a non-circular portion, but the von Hein roller fails to include a circular portion. Further, because the von Hein roller fails to include a circular portion, von Hein fails to include a nip portion formed on the roller.

Fifth, the claim 1 circular portion has high and low friction coefficient portions and is located between the non-circular portions in one roller. In von Hein, high and low friction coefficient portions are not formed in one portion, especially in one circular portion. Thus, von Hein fails to describe the high friction coefficient portion sandwiched between low friction coefficient portions in one circular portion as recited in claim 1.

Sixth, the Examiner has failed to make out a prima facie case of obviousness based on the asserted motivation to combine the applied references. The Examiner has failed to identify any support in either reference and the Examiner has failed to set forth reasoning for the asserted motivation. There is no support or suggestion in either reference for the assertion that combining Wakabayashi with von Hein would prevent slippage and provide relief.

A statement that combination of the prior art to meet the claimed invention would have been well within the ordinary skill of the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. See MPEP 2143.01 quoting Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). The Office Action merely stated two unsupported assertions regarding combination of the applied references. In other words, the Office Action failed to supply any objective reasons supported by reasoning or the references themselves to combine the applied references.

In accordance with MPEP §2143.01 and Al-Site Corp. v. VSI Int'l Inc., 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999), the Examiner is requested to identify a teaching, suggestion, or motivation in either reference or to provide an affidavit of facts within the personal knowledge of

the Examiner per MPEP §2144.03 providing a motivation or suggestion to one of ordinary skill in the art to make the asserted combination. The Examiner has neither identified any teaching in Wakabayashi or von Hein motivating or suggesting the asserted combination to a person of ordinary skill in the art nor provided an affidavit because there is no teaching to be found. For at least this reason, the rejection should be reversed.

"When an obviousness determination is based on multiple prior art references, there must be a showing of some 'teaching, suggestion, or reason' to combine the references." Winner International Royalty Corp. v. Wang, 53 USPQ2d 1580, 1586 (Fed. Cir. 2000). The Examiner has failed to make such a showing supporting the applied combination of references and therefore the applied combination of references is improper. The Examiner is in error for any of the above reasons and has not made out a prima facie case of obviousness, and the rejection of claim 1 should be reversed.

Further, it is unclear how the combination of Wakabayashi with von Hein would "prevent slippage and provide relief" as asserted by the Examiner. Further still, it is unclear to what relief would be provided by the asserted combination.

Even assuming for argument that the non-circular portion disclosed in von Hein were combined with the roller of Wakabayashi, the combined roller still lacks the high and low friction coefficient portions. As described above, neither the Wakabayashi roller nor the von Hein roller have high and low friction coefficient portions. Even a combination of the applied references does not disclose or suggest the features as presently claimed in claim 1. For at least this reason, the rejection of claim 1 should be reversed.

Conclusion

For the extensive reasons shown above, Appellant respectfully requests the rejection be reversed.

B. Second Issue

Was the Examiner correct in rejecting claim 9 under 35 U.S.C. 103(a) as being unpatentable over Wakabayashi et al. (U.S. Patent 6,568,668, hereinafter Wakabayashi) in view of von Hein (U.S. Patent 5,007,891, hereinafter von Hein)?

As described above in the First Issue, in the Final Official Action mailed December 10, 2003, the Examiner asserts that Wakabayashi in combination with von Hein disclose all the claim 9 limitations. The Examiner is incorrect for at least six reasons.

First, in contrast with the previously-described rollers of Wakabayashi, each of the paired rotating bodies as claimed in claim 9 is formed of one roller having a circular portion forming a nip portion and non-circular portions. In Wakabayashi, all of the rollers 676A, 676B, 671A, 671B are formed of the same type roller even though the belts 677A, 677B are attached. Wakabayashi fails to describe or suggest rollers having non-circular portions. Wakabayashi describes rollers having only a circular portion and fails to describe non-circular portions formed in the roller having a circular portion.

Second, in claim 9, the circular portion of one roller has high and low friction coefficient portions and the circular portion in the other of the paired rotating bodies has only the low friction coefficient portion. In Wakabayashi, roller 676A has the high friction coefficient portion and roller 676B has the low friction coefficient portion. However, Wakabayashi fails to disclose one roller having both high and low friction coefficient portions.

Third, Wakabayashi fails to describe or suggest the claim 9 nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region. As described above with respect to the second reason, Wakabayashi rollers separately have a high friction coefficient and a low friction coefficient, but Wakabayashi fails to disclose one roller having a nip portion having both high and low coefficient portions.

Fourth and in contrast to the previously-described von Hein roller, each of the paired rotating bodies of claim 9 is formed of one roller having a circular portion and non-circular portions. In von Hein, one roller has a non-circular portion, but the von Hein roller fails to include a circular portion. Therefore, even replacing the Wakabayashi roller with a von Hein roller, a person of ordinary skill in the art at the time of the present invention would obtain one circular

roller (Wakabayashi) and one non-circular roller (von Hein), but not a roller having circular and non-circular portions.

Fifth, the claim 9 circular portion of one roller has both high and low friction coefficient portions. In von Hein, both high and low friction coefficient portions are not formed in one roller, especially in one circular portion. That is, neither Wakabayashi nor von Hein, separately or in combination, describe one roller having both high and low friction coefficient portions.

Sixth, as described above with respect to claim 1, the Examiner has failed to make out a prima facie case of obviousness based on the asserted motivation to combine the applied references. The researching advanced above with respect to claim 1 is hereby incorporated by reference herein with respect to claim 9 for brevity.

The Examiner is in error for any of the above reasons and has not made out a prima facie case of obviousness, and the rejection of claim 9 should be reversed.

Even a combination of the applied references does not disclose or suggest the features as presently claimed in claim 9. For at least this reason, the rejection of claim 9 should be reversed.

Conclusion

For the extensive reasons shown above, Appellant respectfully requests the rejection be reversed.

Each of the Examiner's rejections has been traversed. Appellant respectfully submits that all claims on appeal are considered patentable over the applied art of record. Accordingly, reversal of the Examiner's Final Rejection is believed appropriate and courteously solicited.

If for any reason this Appeal Brief is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned, Applicant's agent of record.

Attached herewith is a credit card authorization form to cover the appeal brief fee in the amount of $330.00.

Respectfully submitted,

HAUPTMAN KANESAKA BERNER
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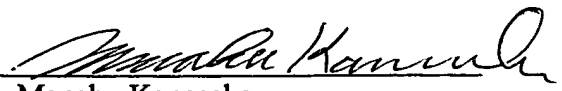
by 
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IX. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

1. A sheet processing apparatus for folding a sheet bundle at a predetermined position, comprising:

pressing means for pressing a predetermined position of said sheet bundle to fold the sheet bundle; and

paired rotating bodies for folding the sheet bundle supplied by the pressing means, said paired rotating bodies having nip portions contacting the sheet bundle, said nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region in friction coefficient, which are made of different materials, each of said paired rotating bodies being formed of one roller having a circular portion forming the nip portion and two non-circular portions, said circular portion having said high and low friction coefficient portions and being located between the two non-circular portions in one roller, said high friction coefficient portion being sandwiched between two low friction coefficient portions in one circular portion so that a pulling force of the rotating bodies to pull the sheet bundle pressed into the nip portions of the rotating bodies by the pressing means has an amount which does not separate a sheet of said sheet bundle contacting the rotating bodies from subsequent sheets in the sheet bundle when pulling the sheet bundle.

4. A sheet processing apparatus according to claim 1, wherein said high friction coefficient region on said one rotating body is narrower than the high friction coefficient region on said other rotating body.

5. A sheet processing apparatus according to claim 4, wherein one of said rotating bodies is positioned lower than the other of said rotating bodies of said paired rotating bodies.

6. An image forming apparatus comprising: an image forming unit and said sheet processing apparatus according to claim 1 disposed in the image forming unit, said sheet processing apparatus folding at a predetermined position a sheet bundle formed with images thereupon by said image forming unit.

9. A sheet processing apparatus for folding a sheet bundle at a predetermined position, comprising:

pressing means for pressing a predetermined position of said sheet bundle to fold the sheet bundle; and

paired rotating bodies for folding the sheet bundle supplied by the pressing means, said paired rotating bodies having nip portions contacting the sheet bundle, one of said nip portions having a high friction coefficient region and a low friction coefficient region less than the high friction coefficient region in friction coefficient, which are made of different materials, each of said paired rotating bodies being formed of one roller having a circular portion and non-circular portions, said circular portion in one of said paired rotating bodies having said high and low friction coefficient portions and said circular portion in the other of said paired rotating bodies having only said low friction coefficient portion so that a pulling force of the rotating bodies to pull the sheet bundle pressed into the nip portions of the rotating bodies by the pressing means has an amount which does not separate a sheet of said sheet bundle contacting the rotating bodies from subsequent sheets in the sheet bundle when pulling the sheet bundle.